

We claim:

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1. A lead-acid cell comprising a container, a positive plate and a negative plate disposed within the container, a separator disposed within the container and separating the positive and negative plates, the positive plate comprising a grid supporting structure having a layer of active material pasted thereto, the grid supporting structure comprising an alloy consisting essentially of lead, tin in an amount greater than about 0.5%, calcium in an amount such that the ratio of tin to calcium is greater than about 12:1, and silver in the range of greater than 0 to about 0.020%, the percentages being based upon the total weight of the alloy.

2. The cell of claim 1 wherein the tin content of the alloy is in the range of greater than about 0.5% to less than about 1.2%.

3. The cell of claim 1 wherein the tin content of the alloy is in the range of about 0.6% to less than about 1.2%.

4. The cell of claim 1 wherein the tin content of the alloy is in the range of about 0.8% to about 1.1%.

5. The cell of claim 1 wherein the silver content of the alloy is in the range of greater than 0 to about 0.015%.

6. The cell of claim 1 wherein the silver content of the alloy is in the range of about 0.005% to about 0.015%.

7. The cell of claim 1 wherein the silver content of the alloy is in the range of about 0.0005% to about 0.012%.

8. The cell of claim 1 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 15:1.

9. The cell of claim 1 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 20:1.

10. The cell of claim 1 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 15:1.

11. The cell of claim 1 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 20:1.

12. The cell of claim 1 wherein the alloy further includes aluminum in the range of greater than 0 to about 0.03%.

13. The cell of claim 1 wherein the alloy further includes aluminum in the range of about 0.012% to about 0.020%.

14. A lead-acid cell comprising a container, a positive plate and a negative plate disposed within the container, a separator disposed within the container and separating the positive and negative plates, the positive plate comprising a grid supporting structure having a layer of active material pasted thereto, the grid supporting structure comprising an alloy consisting essentially of lead, tin in an amount greater than about 0.5%, calcium in an amount such that the ratio of tin to calcium is greater than about 12:1, and silver in the range of greater than 0 to about 0.015%, the percentages being based upon the total weight of the alloy.

15. The cell of claim 14 wherein the tin content of the alloy is in the range of greater than about 0.5% to less than about 1.2%.

16. The cell of claim 14 wherein the tin content of the alloy is in the range of about 0.6% to less than about 1.2%.

17. The cell of claim 14 wherein the tin content of the alloy is in the range of about 0.8% to about 1.1%.

18. The cell of claim 14 wherein the silver content of the alloy is in the range of about 0.005% to about 0.015%.

19. The cell of claim 14 wherein the silver content of the alloy is in the range of about 0.0005% to about 0.012%.

20. The cell of claim 14 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 15:1.

21. The cell of claim 14 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 20:1.

22. The cell of claim 14 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 15:1.

23. The cell of claim 14 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 20:1.

24. The cell of claim 14 wherein the alloy further includes aluminum in the range of greater than 0 to about 0.03%.

25. The cell of claim 14 wherein the alloy further includes aluminum in the range of about 0.012% to about 0.020%.

26. A grid supporting structure for use in a lead-acid battery having a positive plate and a negative plate disposed within a container, a separator disposed within the container and separating the positive and negative plates, the grid supporting structure having a layer of active material pasted thereto, the grid supporting structure comprising an alloy consisting essentially of lead, tin in an amount greater than about 0.5%, calcium in an amount such that the ratio of tin to calcium is greater than about 12:1, and silver in the range of greater than 0 to about 0.020%, the percentages being based upon the total weight of the alloy. 3

27. The grid supporting structure of claim 26 wherein the tin content of the alloy is in the range of greater than about 0.5% to less than about 1.2%.

28. The grid supporting structure of claim 26 wherein the tin content of the alloy is in the range of about 0.6% to less than about 1.2%.

29. The grid supporting structure of claim 26 wherein the tin content of the alloy is in the range of about 0.8% to about 1.1%.

30. The grid supporting structure of claim 26 wherein the silver content of the alloy is in the range of greater than 0 to about 0.015%.

31. The grid supporting structure of claim 26 wherein the silver content of the alloy is in the range of about 0.005% to about 0.015%.

32. The grid supporting structure of claim 26 wherein the silver content of the alloy is in the range of about 0.0005% to about 0.012%.

33. The grid supporting structure of claim 26 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 15:1.

34. The grid supporting structure of claim 26 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 20:1.

35. The grid supporting structure of claim 26 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 15:1.

36. The grid supporting structure of claim 26 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 20:1.

37. The grid supporting structure of claim 26 wherein the alloy further includes aluminum in the range of greater than 0 to about 0.03%.

38. The grid supporting structure of claim 26 wherein the alloy further includes aluminum in the range of about 0.012% to about 0.020%.

39. A grid supporting structure for use in a lead-acid battery having a positive plate and a negative plate disposed within a container, a separator disposed within the container and separating the positive and negative plates, the grid supporting structure having a layer of active material pasted thereto, the grid supporting structure comprising an alloy consisting essentially of lead, tin in an amount greater than about 0.5%, calcium in an amount such that the ratio of tin to calcium is greater than about 12:1, and silver in the range of greater than 0 to about 0.015%, the percentages being based upon the total weight of the alloy.

40. The grid supporting structure of claim 39 wherein the tin content of the alloy is in the range of greater than about 0.5% to less than about 1.2%.

41. The grid supporting structure of claim 39 wherein the tin content of the alloy is in the range of about 0.6% to less than about 1.2%.

42. The grid supporting structure of claim 39 wherein the tin content of the alloy is in the range of about 0.8% to about 1.1%.

43. The grid supporting structure of claim 39 wherein the silver content of the alloy is in the range of about 0.005% to about 0.015%.

44. The grid supporting structure of claim 39 wherein the silver content of the alloy is in the range of about 0.0005% to about 0.012%.

45. The grid supporting structure of claim 39 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 15:1.

46. The grid supporting structure of claim 39 wherein the amount of calcium in the alloy is such that the ratio of tin to calcium is not less than 20:1.

47. The grid supporting structure of claim 39 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 15:1.

48. The grid supporting structure of claim 39 wherein calcium is present in the alloy in the range of about 0.03% to about 0.055% and the ratio of tin to calcium is not less than 20:1.

49. The grid supporting structure of claim 39 wherein the alloy further includes aluminum in the range of greater than 0 to about 0.03%.

50. The grid supporting structure of claim 39 wherein the alloy further includes aluminum in the range of about 0.012% to about 0.020%.